

Title (en)

METHOD FOR IDENTIFICATION OF THE MONOISOTOPIC MASS OF SPECIES OF MOLECULES

Title (de)

VERFAHREN ZUR IDENTIFIZIERUNG DER MONOISOTOPISCHEN MASSE VON SPEZIEN VON MOLEKÜLEN

Title (fr)

PROCÉDÉ D'IDENTIFICATION DE LA MASSE MONOISOTOPIQUE D'ESPÈCES DE MOLÉCULES

Publication

EP 3293755 A1 20180314 (EN)

Application

EP 17174330 A 20170602

Priority

EP 16188157 A 20160909

Abstract (en)

The invention concerns a method for identification of the monoisotopic mass or a parameter correlated the mass of the isotopes of the isotope distribution of at least one species of molecules contained in a sample and/or originated from a sample by at least an ionisation process. The method is comprising the following steps: (i) measuring a mass spectrum of the sample with a mass spectrometer (ii) dividing at least one range of measured m/z values of the mass spectrum of the sample into fractions (iii) assigning at least some of the fractions of the at least one range of measured m/z values to one processor of several provided processors (iv) deducing for each of the at least one species of molecules contained in the sample and/or originated from the sample from the measured mass spectrum in at least one of the fractions of the at least one range of measured m/z values an isotope distribution of their ions having a specific charge z (v) deducing from at least one deduced isotope distribution of the ions of each of the at least one species of molecules contained in the sample and/or originated from the sample the monoisotopic mass or a parameter correlated the mass of the isotopes of the isotope distribution of the species of molecules.

IPC 8 full level

H01J 49/00 (2006.01)

CPC (source: CN EP US)

G01N 30/72 (2013.01 - CN); **H01J 49/0036** (2013.01 - EP US)

Citation (applicant)

- M.W. SENKO ET AL., J. AM. SOC. MASS SPECTROM., vol. 6, 1995, pages 52
- D.M. HORN ET AL., J. AM. SOC. MASS SPECTROM., vol. 11, 2000, pages 320
- L. CHEN; Y.L. YAP, J. AM. SOC. MASS SPECTROM., vol. 19, 2008, pages 46
- Z. ZHANG; A.G. MARSHALL, J. AM. SOC. MASS SPECTROM., vol. 9, 1998, pages 225
- P. KAUR; P.B. O'CONNOR, J. AM. SOC. MASS SPECTROM., vol. 17, 2006, pages 459
- X. LIU ET AL., MOL. CELL PROTEOMICS, vol. 9, 2010, pages 2772
- B.B. REINHOLD; V.N. REINHOLD, J. AM. SOC. MASS SPECTROM., vol. 3, 1992, pages 207
- SENKO ET AL., J. J. AM. MASS SPECTROM., vol. 6, 1995, pages 229 - 233
- VALKENBORG ET AL., J. AM. MASS SPECTROM., vol. 19, 2008, pages 703 - 712
- M. W. SENKO ET AL., J. AM. SOC. MASS SPECTROM., vol. 6, 1995, pages 52 - 56
- Z. ZHANG; A.G. MARSHALL, J. AM. SOC. MASS SPECTROM., vol. 9, 1998, pages 225 - 233

Citation (search report)

- [XA] WO 2004102180 A2 20041125 - XZILLION GMBH & CO KG [DE], et al
- [XI] WO 0167485 A1 20010913 - AMERSHAM PHARM BIOTECH AB [SE], et al
- [XII] US 2005255606 A1 20051117 - AHMED ZULFIKAR [US], et al
- [XDI] SENKO ET AL: "Determination of monoisotopic masses and ion populations for large biomolecules from resolved isotopic distributions", JOURNAL OF THE AMERICAN SOCIETY FOR MASS SPECTROMETRY, ELSEVIER SCIENCE INC, US, vol. 6, no. 4, 1 April 1995 (1995-04-01), pages 229 - 233, XP005357128, ISSN: 1044-0305, DOI: 10.1016/1044-0305(95)00017-8
- [XII] HORN D M ET AL: "Automated reduction and interpretation of high resolution electrospray mass spectra of large molecules", JOURNAL OF THE AMERICAN SOCIETY FOR MASS SPECTROMETRY, ELSEVIER SCIENCE INC, US, vol. 11, no. 4, 1 April 2000 (2000-04-01), pages 320 - 332, XP004191630, ISSN: 1044-0305, DOI: 10.1016/S1044-0305(99)00157-9
- [XII] KAUR P ET AL: "Algorithms for Automatic Interpretation of High Resolution Mass Spectra", JOURNAL OF THE AMERICAN SOCIETY FOR MASS SPECTROMETRY, ELSEVIER SCIENCE INC, US, vol. 17, no. 3, 1 March 2006 (2006-03-01), pages 459 - 468, XP027973619, ISSN: 1044-0305, [retrieved on 20060301]
- [A] ZHANG Z ET AL: "A Universal Algorithm for Fast and Automated Charge State Deconvolution of Electrospray Mass-to-Charge Ratio Spectra", JOURNAL OF THE AMERICAN SOCIETY FOR MASS SPECTROMETRY, ELSEVIER SCIENCE INC, US, vol. 9, no. 3, 1 March 1998 (1998-03-01), pages 225 - 233, XP004112012, ISSN: 1044-0305, DOI: 10.1016/S1044-0305(97)00284-5

Cited by

EP3916754A1; WO2023025400A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3293755 A1 20180314; EP 3293755 B1 20190522; CN 107807198 A 20180316; CN 107807198 B 20200804; DK 3293755 T3 20190624; EP 3293754 A1 20180314; EP 3564984 A1 20191106; JP 2018040802 A 20180315; JP 6644748 B2 20200212; US 10593530 B2 20200317; US 11177121 B2 20211116; US 2018076012 A1 20180315; US 2020211831 A1 20200702

DOCDB simple family (application)

EP 17174330 A 20170602; CN 201710780048 A 20170901; DK 17174330 T 20170602; EP 16188157 A 20160909; EP 19175643 A 20170602; JP 2017173076 A 20170908; US 201715698474 A 20170907; US 202016818767 A 20200313